ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Advanced Television Systems and	)	MM Docket No. 87-268
Their Impact Upon the Existing	)	
Television Broadcast Service	)	

REPLY COMMENTS OF BUSINESS SOFTWARE ALLIANCE

The Business Software Alliance ("BSA"), on behalf of its members, hereby submits the following Reply Comments in response to the Federal Communications Commission's ("Commission") *Fourth Further Notice of Proposed Rule Making and Third Notice of Inquiry* in the above-referenced proceeding.[1] BSA believes that the Commission should refrain from at this stage implementing prematurely decisions that have the potential to preempt a full technical analysis of the proper technology to be deployed for the Advanced Television service ("ATV"). It is critical for achievement of the Commission's goals in this proceeding that the Commission have the benefit of the input from a broad range of participants in the computer industry on the fundamental technical issues that will determine the future of ATV. BSA believes that computer industry input can be particularly helpful to the Commission in analyzing such issues as its technical options for promoting robust data delivery and high image fidelity.

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[1] *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, FCC 95-315, MM Docket No. 87-268, released August 9, 1995 ("*ATV Fourth NPRM*"). On October 11, 1995, the Commission granted parties an extension of time until January 12, 1996, in which to file reply comments in this proceeding. On January 11, 1996, the Commission further extended the deadline for reply comments until January 22, 1996.

BSA, therefore, urges the Commission to proceed expeditiously to issue a Further Notice focusing on the technical issues related to Advanced Television services so that it can review the information collected to date in light of the technical submissions before it makes policy decisions which could affect the development of Advanced Television services for years to come.[2]

INTRODUCTION

The Business Software Alliance ("BSA"), promotes the continued growth of the software industry through its international public policy, education, and enforcement programs in more than 60 countries throughout North America, Europe, Asia, and Latin America. BSA worldwide members include the leading publishers of PC software including Adobe, Autodesk, Bentley Systems, Microsoft, Novell, Symantec Corporation, and The Santa Cruz Operation. BSA's Policy Council consists of these publishers and other leading computer technology companies including Apple Computer, Digital Equipment Corp., Intel, and Sybase.

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[2] In its *ATV Fourth NPRM*, the Commission stated that it would initiate a rulemaking proceeding after it has received a recommendation regarding an ATV standard from the Advisory Committee on Advanced Television Service. *See ATV Fourth NPRM* at para. 19. The recommendation was submitted to the Commission on November 28, 1995, *see* Advisory Committee Final Report and Recommendation, Federal Communications Commission Advisory Committee on Advanced Television Service, November 28, 1995 ("ACATS Report"). BSA is encouraged by reports that the Commission plans to issue a further notice addressing the standards issue in the near future. BSA supports this opportunity to provide the Commission with essential input on the best means of ensuring the realization by consumers of the maximum benefits of the ATV technology. BSA and BSA members plan to participate in that proceeding. BSA urges the Commission to avoid rushing the adoption of an ATV standard that may be outdated by the time the FCC establishes the standard or the ATV sets are produced. The Commission can best expedite implementation of ATV by issuing a broad further notice soliciting detailed comments on the technical issues as soon as possible.

BSA urges the Commission to ensure that the ATV policies it ultimately adopts best promote the consumer interest in promoting robust data delivery and high image fidelity. Only an ATV service that both provides a high quality television signal and promotes robust data delivery of a wide variety of multimedia, video, voice and data applications will promote the most efficient use of the spectrum and maximize the educational, informational, and social, as well as entertainment, benefits of digital television for the public.

DISCUSSION

The Commission's goals in this proceeding include "fostering an expeditious and orderly transition to digital technology that will allow the public to receive the benefits of digital television while taking account of consumer investment in NTSC television sets" and "ensuring that the spectrum . . . will be used in a manner that best serves the public interest."[3] The recommendation issued by the Advisory Committee on Advanced Television Service on the standard to be adopted for the ATV service, however, which focuses on the standard developed and advocated by the Grand Alliance,[4] must be viewed as a first step initiating the dialogue on the best technical means of achieving the Commission's goals.

For example, the Commission may wish to solicit information about technology for "robust data delivery" of a wide variety of types of data. Under a "defined data capability" approach, a portion of the data stream is reserved for communication to the receiving equipment of an

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[3] *See ATV Fourth NPRM* at para. 6.

[4] Members of the Grand Alliance are AT&T Corp., General Instrument Corporation, Massachusetts Institute of Technology, Philips Electronics North America Corporation, Thomson Consumer Electronics, The David Sarnoff Research Center, and Zenith Electronics Corporation.

identifying "header" or "marker" that tells the receiver what type of digital information is being transmitted, so that the receiver can apply to the data stream the appropriate decompression or decoding system. This approach may maximize the flexibility of Advanced Television systems for delivering to consumers a wide variety of types of digital information, but it was not part of the Grand Alliance proposal.

Similarly, while the Grand Alliance proposal appears to embrace the use of a wide range of technologies, including both interlaced scanning and progressive scan video inputs (or "non-interlaced" scanning),[5] the breadth of this standard is its major defect. While BSA commends the Grand Alliance's efforts to consider the computer industry's concerns regarding compatibility, there is substantial evidence that the adoption of the proposed standard that includes interlaced scanning technology has the potential to impede the transition to digital technologies and undermines the full

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[5] In order to transmit a single image, an interlaced monitor must "scan" the image twice. A monitor utilizing an interlaced scan technology oscillates only half the lines of the display with each pass so that only the even-numbered or the odd-numbered lines of the display are illuminated at any moment. This results in a perceptible "flicker" when high quality text and graphics are displayed on the monitor screen because a viewer's eyes can notice the shift between the images comprised of the odd-numbered lines and the images comprised of the even-numbered lines. The eyes' efforts to resolve the images into a single image without a flicker can cause eye strain and related problems. In contrast, a monitor utilizing non-interlaced or progressive scan technology transmits the complete image with every pass. Thus, it eliminates the flicker problem. While certain "de-interlacing" features can be incorporated into monitors to eliminate the flicker while ensuring backwards compatibility, this adds additional costs to each monitor. If, instead, any deinterlacing equipment is built into cable head-ends and other transmission equipment, the monitors themselves will not require the additional technology, a much more cost-efficient solution, and one that may make adoption of ATV much more affordable for consumers, and thus more rapidly deployed to a mass market. (Moreover, such an approach would permit consumers to use the non-interlaced computer monitors they may already have for ATV applications with only the addition of low-cost add-in boards, facilitating the development of multimedia services and applications similar to those already available to computer users who have added NTSC-compatible add-in receiver boards to their computer systems.)

utilization of the digital broadcast technology by consumers, in contravention of the Commission's stated goals.[6] Approval of a display standard that permits use of the interlaced technology would result in lower quality display of text and graphics and would create numerous compatibility problems with computer-based technologies.[7] Unless and until consumers perceive a major change in the quality of programming they view, as they did when color programming became widely available, the mass of consumers will not shift to ATV. An intermediate-quality interlaced technology-based service, which would be permitted under the Grand Alliance approach, would not facilitate the production or provision of the interactive and multimedia, as well as high resolution,

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[6] *See Position Statement of Microsoft on Advanced Television*, released Nov. 22, 1995. *See also Position Statement of Computer Industry Coalition on Advanced Television Service,* reprinted in Washington Telecom Week, Vol. 4, No. 51, December 22, 1995 at 9. Members of the Coalition include Apple Computer, Compaq, Hewlett-Packard, Intel, Microsoft, Oracle, Silicon, Graphics and Tandem.

[7] Interlaced technology predominates in current television systems, and the television manufacturers that participated in the Grand Alliance have asserted that it is too expensive to manufacture progressive scan sets for consumers. In fact, however, exclusive adoption of the progressive scan technology ultimately will minimize the cost of the ATV technology to the consumer while maximizing the benefits realized by consumers. To permit the adoption of the interlaced standard on an interim basis until progressive scan technology becomes "cost-effective" would force consumers to buy expensive ATV equipment suitable only for a subset of service applications that is likely to become obsolete soon after it is acquired. It may well be that consumers so "burned" will not be willing to make the additional investment required for the non-interlaced ATV service that even the Committee recognizes is preferable. *See* ACATS Report at 14 & n.38. BSA strongly urges the Commission to consider the extensive research already conducted by the computer industry that demonstrates that the progressive scan technology provides consumers with substantial health benefits, as well as the potential to maximize the opportunity for consumers to utilize the ATV services for a multitude of discrete and multimedia video, voice and data applications that will serve consumers well into the future.

programming that is sufficiently superior and distinct from that currently available to motivate consumers to make the investment required to make ATV the norm.[8]

On the other hand, as noted by such parties as Microsoft and the Computer Industry Coalition on Advanced Television Service ("Coalition"), the progressive scan technology, which transmits a complete picture with each "pass" because it utilizes higher screen refresh rates, usually of 70 Hz or greater, would promote the rapid adoption of the digital broadcasting technology by consumers by increasing the availability of multimedia applications of ATV services, which is critical to the successful implementation of ATV. Progressive scan technology also would facilitate the development of the "information superhighway" and the availability of interactive services for individuals, schools and governments. Because the United States software industry leads the world market, the widespread deployment of interactive capability in the U.S. has the potential to dramatically improve education in the U.S., as well as to facilitate U.S. economic development by allowing the U.S. industry to pioneer new products and services in the U.S. as well as export them.

These examples of unresolved technical concerns demonstrate that the technical issues cannot be separated from the policy issues the Commission is currently considering. The Commission should keep this point in mind when it is considering the issues raised in the *ATV Fourth NPRM.* Rather than attempt now to reach policy conclusions that could preempt the full technical analysis necessary for the development of the optimal technical policies for ATV services, the Commission should promptly seek other additional input on the technical issue.

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[8] The experience with efforts to develop AM stereo services demonstrates that unless the Commission proceeds deliberately in the regulatory process, and unless consumers see substantial benefits arising from adoption of newly-authorized technologies, the potential new services will fizzle.

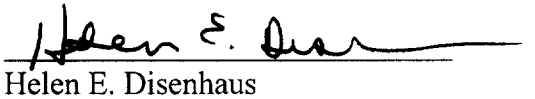
CONCLUSION

For the foregoing reasons, BSA urges the Commission to withstand any pressure to hastily adopt the Grand Alliance or any other standard. For example, premature adoption of a standard could impede the implementation of ATV by limiting the benefits to consumers of digital broadcasting technology, as, for example, by failing to promote robust data delivery or ensure high image fidelity. Thus, establishing a premature standard could also undermine the goal of achieving the best utilization of scarce spectrum.

Rather, the Commission should, as it has previously proposed, issue a Fifth Further Notice of Proposed Rulemaking soliciting comments that provide a full analysis of the technical issues. BSA and its members look forward to working with the Commission to achieve the important policy goals it has established for this proceeding..

Respectfully submitted,

BUSINESS SOFTWARE ALLIANCE



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CERTIFICATE OF SERVICE

I hereby certify that on this 23rd day of January 1996 copies of the foregoing Reply Comments of Business Software Alliance were sent via Hand-Delivery to the parties listed below:

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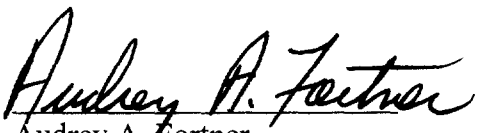

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